

REMARKS

The Applicant appreciates the Examiner's thorough review of the application.

Reconsideration and allowance are respectfully requested.

Claims 1 – 16 remain pending in the Application, including independent Claims 1, 8, and 13.

Claims 1 – 3, 8 – 9, and 12 are patentable under 35 U.S.C. 103(a) over Shimohatsubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130).

Shimohatsubo is a flexographic ink feeding apparatus with a redesigned inner chamber that eliminates acute angles, easing the process of cleaning the apparatus. Kersch is an automatic cleaning system for cleaning the rotating bodies of a press using a cleaning reservoir pressure container, with pressure generated or relieved by compressed air insertion or removal.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

Claim 1 is distinguished from Shimohatsubo and Kersch at least in that it teaches spraying pressurised cleaning liquid into a doctor blade chamber through at least one cleaning nozzle and partial filling of a hydrophore with liquid from a storage tank, a supply system or a water tap by means of a high-pressure pump. No references, taken alone or in combination, teach or suggest these features. The Examiner argues that Shimohatsubo teaches that

SEP 15 2008

"pressurized cleaning liquid (col. 4, lines 52-53) is sprayed into the chamber through at least one cleaning nozzle (Fig. 2; 21)." Applicant cannot agree.

The lines cited to by the Examiner say nothing about spraying, pressurized cleaning liquid, or a cleaning nozzle. Rather, they teach that "clean water is supplied into the chamber 35 through the conduit 20 and holes 21 in the blade mounting plate 19 by driving a pump 38." The Examiner apparently recognizes that Kersch has nothing to do with a doctor blade. Therefore, neither reference teaches or suggests this limitation.

The Examiner allows that Shimohatsubo does not teach or suggest "partial filling of a hydrophore with liquid from a storage tank... by means of a high pressure pump." However, the Examiner also argues that "Kersch et al. teaches partial filling of a hydrophore with liquid from a storage tank (Fig. 1:1), a supply system (Fig. 1: 14) or a water tap by means of a high pressure pump (Fig. 1: 14)." Applicant cannot agree.

The Examiner identifies element 14 of Kersch as a supply system and high pressure pump for partial filling of a hydrophore with liquid. This is incorrect. Element 14 is a changeover valve. "The pressure container 1 can be pressurized from a compressed-air source, not shown, generally from the existing supply system of the press, via an electronically driven changeover valve 14... and can be relieved of pressure via a further pressure line 13 and an electronically driveable changeover valve 15." (Col. 4, ll. 23-28) Kersch operates differently from the present invention and as a result does not have or need a high pressure pump for partially filling a hydrophore with liquid.

In the present invention (Pages 4-5):

"By using the hydrophore, a small high-pressure pump with a capacity reduced with a factor 100 may be used. The pump only needs to have a pumping capacity of 10-12 l/min. This will provide capacity for shots with an endurance of 1/10 or a few tenths of a second and with an amount of about 2-4 litres per shot. The shots are

repeated at intervals between 8 and 12 s. The hydrophore may have a content of 6-8 l cleaning liquid, and when about 2 l per shot are used, a sufficiently high pressure is maintained during the entire shot. After each shot, the high pressure pump will build up pressure in the hydrophore.

As cleaning liquid comes from a storage tank or from a supply system, it is only necessary to dimension the hydrophore itself and the short connecting lines to the chamber for high pressure. By disposing shut-off means in the shape of valves or similar between the chamber and the hydrophore, the cleaning cycle may be controlled by actuating the valve.

As mentioned above, the hydrophore may be made for containing a very limited amount of liquid, namely a small multiple of the amount to be used for each cleaning shot. This means that the hydrophore may be constructed with a very small volume with very short pipe connections to the cleaning nozzles. Hereby pressure losses in the pipes are avoided, and it becomes possible to work with a high injection pressure in the chamber so that good distribution of the cleaning liquid and hence efficient cleaning of the chamber is achieved."

Thus, in the present invention, the hydrophore is very small and contains only a small multiple of the amount of liquid used for each cleaning shot. After each cleaning shot, the high pressure pump injects more liquid into the hydrophore and builds up pressure in the hydrophore.

In contrast, Kersch has a pressure container 1 full of a cleaning medium. To build up pressure in the container, compressed air is injected into the container through changeover valve 14 as shown in Figure 1. To relieve pressure in the container, changeover valve 15 can allow some release of air from the container. Valves 14 and 15 do not vent or pump liquid of any kind. By maintaining a high air pressure, even a very small amount of liquid in Kersch could be pressurized so that when valves 4 and 5 are opened, cleaning medium flows through fluid feed line 2 to the outlet pipe 3.

The other references cited do nothing to supply what is lacking in Shimohatsubo and Kersch. Therefore, the references, taken alone or in combination, do not teach or suggest all the limitations of Claim 1. Claim 8 is patentable for similar reasons, as it teaches at least one

cleaning nozzle through which pressurised cleaning liquid is sprayed into a doctor blade chamber and a hydrophore connected with a storage tank, supply system or a water tap via a high-pressure pump for transferring a volume of cleaning liquid for partly filling the hydrophore for building up a predetermined pressure in the hydrophore.

Furthermore, Shimohatsubo and Kersch could not be combined. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The Examiner argues that "It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Shimohatsubo et al. to provide partial filling of a hydrophore with liquid from a storage tank, a supply system or a water tap by means of a high-pressure pump... as taught by Kersch et al., for the purpose of reducing consumption of ink cleaning agents and associated costs," citing to lines 33-36 of Col. 1. Applicant cannot agree.

The lines cited to by the Examiner have nothing to do with Kersch. Rather, they refer to the advantage of automatic cleaning systems and a detergent recycling system, as known in the art. That advantage has nothing to do with the particular features identified by the Examiner for combination with Shimohatsubo. Furthermore, it appears that Shimohatsubo already has an automated cleaning system in the sense described in the background of Kersch. The cleaning system of Shimohatsubo is completely different from that of Kersch and indeed appears to be incompatible with that of Kersch. There would be no reason for anyone to substitute the system of Kersch for that of Shimohatsubo, short of hindsight reconstruction.

Claims 2 – 3 depend from and share the patentable limitations of Claim 1 and add further patentable features. Claims 9 and 12 depend from and share the patentable limitations of Claim 8 and add further patentable features. Examples are given below.

Claim 2 adds filling a storage tank with cleaning liquid and transferring a volume of cleaning liquid from the storage tank for filling the hydrophore, where each cleaning cycle includes a number of shots with an interval of 5 - 15 seconds, preferably about 10 seconds. The Examiner allows that neither references teaches or suggests that each cleaning cycle includes a number of shots with an interval of 5 - 15 seconds, preferably about 10 seconds. However, the Examiner has the words "choice of design" in parenthetical. Applicant respectfully requests that the Examiner clarify the law that is being relied on in support of the rejection. For an obviousness rejection, all the claim limitations must be taught or suggested by the applied reference.

Furthermore, the Examiner argues that Shimohatsubo teaches filling a storage tank with cleaning liquid and that Kersch teaches transferring a volume of cleaning liquid from the storage tank for filling the hydrophore. It appears impossible for Kersch to teach transferring a volume of cleaning liquid from the storage tank for filling the hydrophore when it does not teach filling a storage tank with cleaning liquid, as the Examiner apparently allows. In any case, Kersch does not teach or suggest transferring cleaning liquid from a storage tank for filling a hydrophore, as explained above.

Claim 3 adds that the hydrophore and the ink chamber are blown through for driving out cleaning liquid at the termination of a cleaning cycle. The references, taken alone or in combination, do not teach or suggest this limitation. The Examiner argues that this limitations is taught by Shimohatsubo in Col. 4, lines 48-58. However, the lines cited to by the Examiner have nothing to do with blowing through a hydrophore and ink chamber to drive out cleaning liquid.

Claim 9 adds that the hydrophore is connected with a source of pressurised air, preferably a standard pressurised air facility, so that the hydrophore and the ink chamber may be blown

through for driving out cleaning liquid at the termination of a cleaning cycle. No reference teaches or suggests this limitation. The Examiner cites to Col. 4 of Kersch as teaching this limitation, however, the lines cited have nothing to do with blowing through a hydrophore and ink chamber for driving out cleaning liquid.

Claim 12 adds that a number of inlets and outlets are provided in the chamber, the inlets and outlets being distributed along the length of the chamber, as a row of inlets are disposed at one side of the chamber while a row of outlets are disposed at the opposite side of the chamber, that the row of inlets are connected with a common ink supply, and that the row of outlets are connected with a common outlet for ink. The references, taken alone or in combination, do not teach or suggest this limitation. The Examiner argues that element 3 of Figure 6 of Kersch meets this limitation. Applicant cannot agree. Element 3 is a cleaning element and cleaning liquid is expelled from it.

For at least the above reasons, the rejection of Claims 1 – 3, 8 – 9, and 12 under 35 U.S.C. 103(a) over Shimohatsubo in view of Kersch is improper and should be withdrawn.

Claim 4 is patentable under 35 U.S.C. 103(a) over Shimohatsubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130) and further in view of Yamaguchi et al. (US 6,623,564).

Claim 4 depends from and shares the patentable limitations of Claim 1 and adds further patentable features. Furthermore, Yamaguchi is non-analogous and should be removed as a reference. Yamaguchi is non-analogous art and cannot render the present invention obvious because it is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned. Yamaguchi is not in the field of

Applicant's endeavor because it is in the field of recovering synthetic substrates, and not printing unit ink chamber cleaning.

Yamaguchi is not reasonably pertinent to the particular problem faced by Applicant. The particular problem solved by the present application is the problem of providing a technically simple and reliable cleaning system for ink chambers of printing units working according to a method which enables use of a small energy-saving and space saving high-pressure pump, and which facilitate replacing the cleaning nozzles, and Yamaguchi has nothing to do with that. Yamaguchi does not, because of the matter with which it deals, logically commend itself to an inventor's attention in considering this problem. See Wang Laboratories Inc. v. Toshiba Corp., 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). No inventor would ever think to look to Yamaguchi for solutions to printing unit ink chamber cleaning problems.

Because Yamaguchi is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned, it is non-analogous art and should be removed as a reference.

For at least the above reasons, the rejection of Claim 4 under 35 U.S.C. 103(a) over Shimohatsubo in view of Kersch and further in view of Yamaguchi is improper and should be withdrawn.

Claim 5 is patentable under 35 U.S.C. 103(a) over Shimohatsubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130) and further in view of Steenbergen (US 6,602,566).

Claim 5 depends from and shares the patentable limitations of Claim 1 and adds further patentable features. Furthermore, Steenbergen is non-analogous and should be removed as a reference. Steenbergen is non-analogous art and cannot render the present invention obvious

because it is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned. Steenbergen is not in the field of Applicant's endeavor because it is in the field of applying a removable printed marking to a container, and not printing unit ink chamber cleaning.

Steenbergen is not reasonably pertinent to the particular problem faced by Applicant. The particular problem solved by the present application is the problem of providing a technically simple and reliable cleaning system for ink chambers of printing units working according to a method which enables use of a small energy-saving and space saving high-pressure pump, and which facilitate replacing the cleaning nozzles, and Steenbergen has nothing to do with that. Steenbergen does not, because of the matter with which it deals, logically commend itself to an inventor's attention in considering this problem. See Wang Laboratories Inc. v. Toshiba Corp., 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). No inventor would ever think to look to Steenbergen for solutions to printing unit ink chamber cleaning problems.

Because Steenbergen is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned, it is non-analogous art and should be removed as a reference.

For at least the above reasons, the rejection of Claim 5 under 35 U.S.C. 103(a) over Shimohatsubo in view of Kersch and further in view of Steenbergen is improper and should be withdrawn.

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Claims 6, 10, and 11 are patentable under 35 U.S.C. 103(a) over Shimohatsubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130) and further in view of Figliola (US 3,662,781).

Claim 6 depends from and shares the patentable limitations of Claim 1 and adds further patentable features. Claims 10 – 11 depend from and share the patentable limitations of Claim 8 and add further patentable features. Furthermore, Figliola is non-analogous and should be removed as a reference. Figliola is non-analogous art and cannot render the present invention obvious because it is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned. Figliola is not in the field of Applicant's endeavor because it is in the field of submerged introduction of a fluid into a body of liquid, and not printing unit ink chamber cleaning.

Figliola is not reasonably pertinent to the particular problem faced by Applicant. The particular problem solved by the present application is the problem of providing a technically simple and reliable cleaning system for ink chambers of printing units working according to a method which enables use of a small energy-saving and space saving high-pressure pump, and which facilitate replacing the cleaning nozzles, and Figliola has nothing to do with that. Figliola does not, because of the matter with which it deals, logically commend itself to an inventor's attention in considering this problem. See Wang Laboratories Inc. v. Toshiba Corp., 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). No inventor would ever think to look to Figliola for solutions to printing unit ink chamber cleaning problems.

Because Figliola is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned, it is non-analogous art and should be removed as a reference.

For at least the above reasons, the rejection of Claims 6, 10, and 11 under 35 U.S.C. 103(a) over Shimohatsubo in view of Kersch and further in view of Figliola is improper and should be withdrawn.

Claim 7 is patentable under 35 U.S.C. 103(a) over Shimohatsubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130) and Steenbergen (US 6,602,566) and further in view of Figliola et al. (US 3,662,781).

Claim 7 depends from and shares the patentable limitations of Claim 1 and adds further patentable features. Furthermore, Steenbergen and Figliola are non-analogous and should be removed as references, as explained above.

For at least the above reasons, the rejection of Claim 7 under 35 U.S.C. 103(a) over Shimohatsubo in view of Kersch and further in view of Steenbergen and Figliola is improper and should be withdrawn.

Claims 13 – 16 are patentable under 35 U.S.C. 103(a) over Shimohatsubo et al. (US 6,024,016) in view of Kersch et al. (US 6,755,130) and further in view of Mayer et al. (US 6,964,792).

Claim 13 is distinguished from the references at least in that it teaches a cleaning nozzle for use in a chamber in a doctor blade, where pressurised cleaning liquid is injected into the chamber through at least one such nozzle. No references, taken alone or in combination, teach or suggest this feature. The Examiner argues that these limitations are met by element 21 of Shimohatsubo. Applicant cannot agree.

Element 21 of Shimohatsubo is a hole in a blade mounting plate. It is not a cleaning nozzle and pressurized cleaning liquid is not injected into a doctor blade chamber through it. Therefore, the references do not teach or suggest all the limitations of Claim 13.

Furthermore, the Examiner allows that a combination of Shimohatsubo and Kersch does not teach or suggest a largely mushroom-shaped nozzle body with a stem intended for mounting in the wall of the chamber, and which has a domed top of an elastic material, and furthermore that the nozzle also includes a second nozzle body in the form of a bushing for disposition in an opening in the chamber wall and with a central boring for accommodating the stem of the nozzle body and with through-going openings disposed thereabout, the openings covered by the domed top. Therefore, the Examiner relies on Mayer as teaching these limitations.

However, Mayer does not teach or suggest these limitations. Furthermore, Mayer is non-analogous art and cannot render the present invention obvious because it is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned. Mayer should be removed as a reference. Mayer is not in the field of Applicant's endeavor because it is in the field of controlling electrolyte flow for plating, and not printing unit ink chamber cleaning.

Mayer is not reasonably pertinent to the particular problem faced by Applicant. The particular problem solved by the present application is the problem of providing a technically simple and reliable cleaning system for ink chambers of printing units working according to a method which enables use of a small energy-saving and space saving high-pressure pump, and which facilitate replacing the cleaning nozzles, and Mayer has nothing to do with that. Mayer does not, because of the matter with which it deals, logically commend itself to an inventor's attention in considering this problem. See Wang Laboratories Inc. v. Toshiba Corp., 993 F.2d

858, 26 USPQ2d 1767 (Fed. Cir. 1993). No inventor would ever think to look to Mayer for solutions to printing unit ink chamber cleaning problems.

Because Mayer is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned, it is non-analogous art and should be removed as a reference.

Claims 14 – 16 depend from and share the patentable limitations of Claim 13 and add further patentable features.

For at least the above reasons, the rejection of Claims 13-16 under 35 U.S.C. 103(a) over Shimohatsubo in view of Kersch and further in view of Mayer is improper and should be withdrawn.

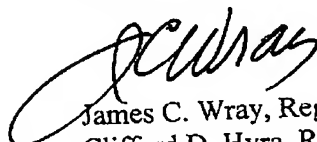
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CONCLUSION

Reconsideration and allowance of all claims are respectfully requested.

Respectfully,



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